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10/520,005	12/14/2005	Hiroshi Kimura	FEC 143NP	7011

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RABIN & Berdo, PC
1101 14TH STREET, NW
SUITE 500
WASHINGTON, DC 20005

EXAMINER	
PERRY, ANTHONY T	
ART UNIT	PAPER NUMBER
2879	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,005	KIMURA, HIROSHI	
	Examiner	Art Unit	
	ANTHONY T. PERRY	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-19 and 21-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-13,18,22-27 and 30* is/are rejected.

7)☒ Claim(s) *28 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Amendment filed on 4/03/2008, has been entered and acknowledged by the Examiner.

Cancellation of claim 20 has been entered.

New claim 30 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beierlein et al. (US 6,501,217).

Regarding claim 18, Beierlein discloses an organic electroluminescent device comprising an organic electroluminescent light-emitting part including an organic light-emitting layer (29,30), between a metal electrode (26) and a transparent electrode (31), the organic electroluminescent device comprising: a transparent electrically conductive film (28) is provided on a surface of the metal electrode, on the organic electroluminescent light-emitting part side thereof; wherein light of wavelengths different than the wavelength of light emitted by the organic light-emitting layer is absorbed by at least one, or both, of the metal electrode and the transparent electrically conductive film, and only light of the wavelength emitted by the organic electroluminescent light-emitting layer is discharged from the transparent electrode (for example,

see Fig. 5 and col. 12, lines 9-10). Beierlein discloses an organic EL device that comprises an EL layer (for example, Alq3, which emits blue light) and a metal electrode (Mo or an alloy thereof), which will inherently absorb light other than blue light and only reflect blue light from the backlight (for example, see col. 4, lines 7-10). Beierlein does not specifically state that the device is a color conversion type color panel that uses a blue monochrome EL layer in conjunction with color converting filters so as to provide a full color display.

However, display devices that use a monochrome blue-emitting EL layer in conjunction with color conversion layers (for example, red and green filters) are well known in the art. Accordingly, it would have been obvious to one having ordinary skill in the art to reasonably contemplate using the EL device taught by Beierlein along with color conversion filters in order to provide a full color display.

Claims 11-13, 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beierlein et al. (US 6,501,217) in view of Hosokawa et al. (US 5,891,554).

Regarding claim 11, Beierlein discloses an organic electroluminescent device comprising an organic electroluminescent light-emitting part including an organic light-emitting layer (29,30), between a metal electrode (26) and a transparent electrode (31), the organic electroluminescent device comprising: a transparent electrically conductive film (28) on a surface of the metal electrode (26), on the organic electroluminescent light-emitting part (29,30) side thereof (for example, see Fig. 5). Beierlein does not specifically teach $L = (2n+1)\lambda/4$ ($n=0$, 1, 2, . . .), where L is the optical distance from the organic light-emitting layer to the metal electrode, and λ is the wavelength of light emitted by the organic light-emitting layer.

However, Hosokawa et al. teaches satisfying such a relationship in order to improve the color purity of the device (for example, see col. 5, lines 34-66). It is noted that L = the sum of $(nd)_X$ and (2n+1) = (2m-1). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to ensure that the thickness of the transparent electrically conductive film is set to satisfy the equation: $L = (2n+1)\lambda/4$ (n=0, 1, 2, . . .), where L is the optical distance from the organic light-emitting layer to the metal electrode, and λ is the wavelength of light emitted by the organic light-emitting layer, in order to provide an organic EL device with enhanced color purity.

Regarding claim 12, Beierlein teaches the transparent electrically conductive film (28) being formed of ZnO (for example, see col. 7, lines 43-46).

Regarding claim 13, Beierlein discloses a monochrome panel or area color panel, including the organic electroluminescent device according to claim 11 (for example, see Fig. 5).

Regarding claim 18, Beierlein discloses an organic electroluminescent device comprising an organic electroluminescent light-emitting part including an organic light-emitting layer (29,30), between a metal electrode (26) and a transparent electrode (31), the organic electroluminescent device comprising: a transparent electrically conductive film (28) is provided on a surface of the metal electrode, on the organic electroluminescent light-emitting part side thereof; wherein light of wavelengths different than the wavelength of light emitted by the organic light-emitting layer is absorbed by at least one, or both, of the metal electrode and the transparent electrically conductive film, and only light of the wavelength emitted by the organic electroluminescent light-emitting layer is discharged from the transparent electrode (for example, see Fig. 5 and col. 12, lines 9-10). Beierlein discloses an organic EL device that comprises an

EL layer (for example, Alq3, which emits blue light) and a metal electrode (Mo or an alloy thereof), which will inherently absorb light other than blue light and only reflect blue light from the backlight (for example, see col. 4, lines 7-10). Beierlein does not specifically state that the device is a color conversion type color panel that uses a blue monochrome EL layer in conjunction with color converting filters so as to provide a full color display.

However, display devices that use a monochrome blue-emitting EL layer in conjunction with color conversion layers (for example, red and green filters) are well known in the art. Accordingly, it would have been obvious to one having ordinary skill in the art to reasonably contemplate using the EL device taught by Beierlein along with color conversion filters in order to provide a full color display.

Regarding claim 22, Beierlein discloses an organic electroluminescent device comprising an organic electroluminescent light-emitting part including an organic light-emitting layer (29,30), between a metal electrode (26) and a transparent electrode (31), the organic electroluminescent device comprising: a transparent electrically conductive film (28) on a surface of the metal electrode (26), on the organic electroluminescent light-emitting part (29,30) side thereof (for example, see Fig. 5). Beierlein teaches light of wavelengths different than the wavelength of light emitted by the organic electroluminescent light-emitting layer is absorbed by the metal electrode and/or the transparent electrically conductive film, and only light of the wavelength emitted by the organic electroluminescent light-emitting layer is discharged from the transparent electrode (for example, see Fig. 5 and col. 12, lines 9-10). Beierlein does not specifically teach $L = (2n+1)\lambda/4$ (n=0, 1, 2, . . .), where L is the optical distance from the organic

light-emitting layer to the metal electrode, and λ is the wavelength of light emitted by the organic light-emitting layer.

However, Hosokawa et al. teaches satisfying such a relationship in order to improve the color purity of the device (for example, see col. 5, lines 34-66). It is noted that L = the sum of $(nd)_\lambda$ and (2n+1) = (2m-1). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to ensure that the thickness of the transparent electrically conductive film is set to satisfy the equation: $L = (2n+1)\lambda/4$ (n=0, 1, 2, . . .), where L is the optical distance from the organic light-emitting layer to the metal electrode, and λ is the wavelength of light emitted by the organic light-emitting layer, in order to provide an organic EL device with enhanced color purity.

Regarding claim 23, Beierlein teaches the transparent electrically conductive film (28) being formed of ZnO (for example, see col. 7, lines 43-46).

Regarding claim 24, Beierlein discloses a monochrome panel or area color panel, including the organic electroluminescent device according to claim 22 (for example, see Fig. 5).

Regarding claim 25, Beierlein discloses an organic EL device that comprises an EL layer (for example, Alq3, which emits blue light) and a metal electrode (Mo or an alloy thereof), which will inherently absorb light other than blue light (for example, see col. 4, lines 7-10).

Regarding claim 26, Beierlein discloses an organic EL device that comprises an EL layer (for example, Alq3, which emits blue light) and a metal electrode (Mo or an alloy thereof), which will inherently absorb light other than blue light and only reflect blue light from the backlight (for example, see col. 4, lines 7-10). The combination of Beierlein in view of Hosokawa et al. does not specifically state that the device is a color conversion type color panel

that uses a blue monochrome EL layer in conjunction with color converting filters so as to provide a full color display.

However, display devices that use a monochrome blue-emitting EL layer in conjunction with color conversion layers (for example, red and green filters) are well known in the art. Accordingly, it would have been obvious to one having ordinary skill in the art to reasonably contemplate using the EL device taught by Beierlein along with color conversion filters in order to provide a full color display.

Regarding claim 27, Beierlein teaches the transparent electrically conductive film being ITO, which is indium oxide doped with tin as an impurity. It is noted that ITO has a blue tint to it. Therefor, Beierlein teaches the transparent electrically conductive film has an impurity added thereto so that it is has a same color of the light emitted by the organic electroluminescent light-emitting layer (Alq3 emits blue light) (for example, see col. 7, lines 43-45).

Regarding claim 30, Beierlein in view of Hosokawa does not specifically recite the transparent conductive film being one of In_2O_3-ZnO and In_2O_3-SnO_2. However, it is noted that the Applicant's specific material for the transparent conductive film, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Furthermore, it is noted that In_2O_3-ZnO and In_2O_3-SnO_2 are well known materials capable of being used as transparent electrodes in organic EL display devices. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have

contemplated using In_2O_3-ZnO or In_2O_3-SnO_2 as the transparent electrode, since the selection of known materials for a known purpose is within the skill of the art.

Allowable Subject Matter

Claims 14-17, 19, and 21 are allowed.

Claims 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose or fairly suggest:

- An organic electroluminescent device wherein the transparent electrically conductive film on a surface of the metal electrode is constituted from a material of one of In_2O_3-ZnO, In_2O_3-SnO_2, ZnO, and SnO_2, containing an impurity of one of CuO, Co, and Ti at a concentration of not more than 1%, and the transparent electrically conductive film absorbs blue light, in combination with the remaining claimed limitations as called for in claim 14 (claims 15-17, 19, and 21 are allowed for the same reasons since they are dependent on claim 14).
- An organic electroluminescent device wherein the transparent electrically conductive film on a surface of the metal electrode is constituted from a material of one of In_2O_3-ZnO, In_2O_3-SnO_2, ZnO, and SnO_2, containing an impurity of one of CuO, Co, and Ti at a concentration of not more than 1%, and the transparent electrically conductive film absorbs blue light, in combination with the remaining

claimed limitations as called for in claim 28 (claim 29 would be allowable for the same reasons since it is dependent on claim 28).

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is **(571) 272-2459**. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. **The fax phone number for this Group is (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anthony Perry/

Anthony Perry
Patent Examiner

Art Unit 2879

/NIMESHKUMAR D. PATEL/
Supervisory Patent Examiner, Art Unit 2879